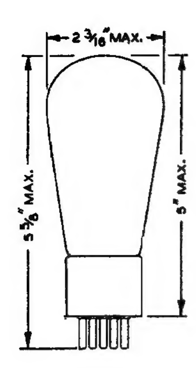
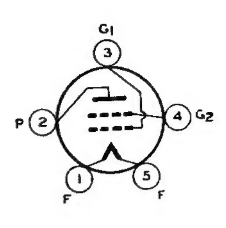


RCA-46

DUAL-GRID POWER AMPLIFIER



The 46 is a double-grid power-amplifier tube recommended especially for service in Class B amplifier circuits of suitable design.

CHARACTERISTICS

Filament Voltage (A. C. or D. C.)	2.5	Volts
Filament Current	1.75	Amperes
Bulb		S-17
Base		Medium 5-Pin

As Class B Amplifier

(Grid No. 1 and No. 2 connected together at socket)

Plate Voltage	400 *max.*	Volts
Peak Plate Current	200 *max.*	Milliamperes
Average Plate Dissipation	10 *max.*	Watts

Typical Operation (2 tubes)

Values are for two tubes.

Plate Voltage	300	400	Volts
Grid Voltage	0	0	Volts
Zero-Signal Plate Current	8	12	Milliamperes
Effective Load Resistance (Plate-to-plate)	5200	5800	Ohms
Power Output (Approximate)	16*	20†	Watts

* With average power input of 950 milliwatts applied between grids.
† With average power input of 650 milliwatts applied between grids.

As Class A_1 Amplifier

(Grid No. 2 connected to plate at socket)

Plate Voltage	250 *max.*	Volts
Grid Voltage	−33	Volts
Plate Current	22	Milliamperes
Plate Resistance	2380	Ohms
Amplification Factor	5.6	
Transconductance	2350	Micromhos
Load Resistance (For max. undistorted power)††	6400	Ohms
Undistorted Power Output	1.25	Watts

†† Approximately twice this value is recommended for load of this tube as driver for Class B stage.

INSTALLATION

The base pins of the 46 fit the standard five-contact socket which may be installed to hold the tube either in a vertical or in a horizontal position. For horizontal operation, the socket should be positioned with the filament-pin openings one vertically above the other. Sufficient ventilation should be provided around the tube to prevent overheating.

The **filament** is designed to operate at 2.5 volts. The transformer winding supplying the filament circuit should operate the filament at this recommended value for full-load operating conditions at average line voltage. The filament wiring should, insofar as possible, be isolated from the input circuit of the driver stage in order to avoid the possibility of hum caused by electrostatic induction from this wiring.

The grid- and the plate-return lead for the Class B stage should be connected to the mid-tap of the filament winding or to the center-tap of a 20-ohm resistor across the winding. The grid- and plate-return for the driver stage should be made

to a variable center-tapped resistor across the filament supply for minimum hum adjustment. The use of a push-pull driver stage with either equi-potential or filament-type tubes will reduce hum resulting from the filament supply, but is required only in special applications.

APPLICATION

In **Class B audio power-amplifier service,** the 46 is recommended because the two grids in the tube are connected together and, thus, the signal voltage is applied to both simultaneously. Consideration of general Class B amplifier design features is given on page 20.

For **Class A_1 operation** of the 46, the grid adjacent to the plate is connected to the plate. The intended application of the 46 as a Class A amplifier is for driving two 46's in a Class B amplifier circuit. The tube has been constructed for this dual service in order to reduce the number of tube types necessary in a receiver. The tabulated values for Class A operation of this type, as given under CHARACTERISTICS, are for its operation as a power output tube.

